

MAIA

INSULARIS

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|--------------------------|-------------------------------|-------------------------|
| Body color | Dark brown | Black |
| Ventral surface. | Light brown | Dark red-brown |
| Tubercles. | Dark brown | Yellow-brown |
| Hairs | Red-brown | Black |
| Legs | Dark brown | Dark brown |
| Prolegs | Dark brown | Maroon |
| Pads. | Translucent flesh color | Light reddish purple |
| Crochets | Black | Brown |
| Spiracles. | Orange-yellow black rimmed | Yellow |
| Head | Black | Black, cheeks purple |
| Antennae | Black | Maroon |

16. NEW OR LITTLE KNOWN CALIFORNIA BEES

By P. H. TIMBERLAKE

The following bees are known to occur in the Channel Islands off the coast of southern California, but some of them are described from material collected on the mainland.

HALICTUS CALIFORNIAE Sandhouse

This species was characterized by Miss Sandhouse in her table of *Chloralictus* (Proc. U. S. Nat. Mus., 65 Art. 19, p. 6, 1924) as a variety of *H. perpunctatus* Ellis. It was too briefly described to be recognized with any certainty, but Doctor Cockerell has sent me one of the two females from Pasadena, California, on which the name was based. In my opinion *californiae* should be considered a distinct species.

The female differs from *perpunctatus* in its more slender form, with the head distinctly but only a little longer than wide. Abdomen in the majority of cabinet specimens unusually extended, exposing the full length of most of the segments. Propodeum much narrowed behind, the truncation being smaller than usual, ill-defined, and about as wide as long. (In *perpunctatus* the truncation is larger, better defined and distinctly broader than long.) Head and thorax darker and more olive-green, a little

less shining and with distinctly finer puncturation throughout. Mesoscutum finely and closely punctured. Mesopleura dullish and obscurely punctured. Face without white tomentum. Abdomen dark brown to fuscous, and entirely lacking the green tinge of *perpunctatus*. Abdomen also a little dullish, with extremely minute punctures on tergites 1 and 2. (In *perpunctatus* tergites 1 and 2 shining, with minute, but more obvious punctures.) From *H. nevadensis* Cwfd. and several other California species as yet undescribed, *californiac* may be distinguished by the shape of the head and by the fine, close and almost uniformly spaced punctures of mesoscutum. Length, about 5.5-6 mm.; anterior wing, 4.1-4.3 mm. (In *perpunctatus* length about 6 mm.; anterior wing 5 mm.)

MALE—Head and thorax dark green or blue-green, the abdomen dark brown to fuscous. Tarsi dull yellowish. Flagellum brownish yellow beneath. Tegulae pale testaceous. Wings hyaline, stigma and nervures honey-yellow. Head broadly oval, distinctly but not greatly longer than wide. Clypeus large and prominent, nearly as high as wide, convex, sparsely punctured. Mandibles unusually long. Face narrowed about one-fourth below and sparsely covered with white tomentum. Antennae reaching about apex of scutellum. Mesoscutum shining, finely, rather closely and almost uniformly punctured. Mesopleura shining, distinctly and finely punctured. Rugae of enclosure varying from coarse and nearly straight to a close, irregular and crinkly condition. Apical rim of enclosure usually smooth and distinct in the middle. Sides of propodeum minutely wrinkled. Tergites minutely and closely punctured and hardly impressed at base. Length, 4.5-5 mm.; interior wing 4-4.3 mm.

Specimens of this species are at hand from San Diego, Yorba Linda, Whittier, Puente Hills, Pasadena, Riverside, Santa Catalina Island, three miles west of Three Rivers, and Sacramento, California. The flower records are various, including *Encelia*, *Gutierrezia*, *Coreopsis*, *Layia*, *Chaenactis*, *Stephanomeria*, *Iso-soma*, *Ericameria*, *Phacelia*, *Eschscholtzia*, *Convolvulus*, *Amsinckia*, *Eriogonum*, and *Mimulus*, and for the males also *Bidens*, *Cryptantha* and *Ermocarpus*. At Riverside, where it is one of the less common species, the females have been taken from Feb. 8 to Dec. 24, and the males from May 28 to Nov. 10.

This is the species recorded by Cockerell, without name (Proc. Cal. Acad. Sci. (4):23, p. 434, 1939), from Fisherman Cove and Rancho Escondido, Santa Catalina Island.

SPHECODES NIGRICANS n. sp.

A small black species, with abdomen entirely dark, belonging to the group *Sphcodium* of Robertson, having the male flagellum not at all moniliform and without facets, and antennal joint 4 only a little longer than 3. From the eastern species of this

group (*S. cressonii* Robt., *S. pimpinellae* Robt., *S. knetschi* Ckll., and *S. proshorus* L. & C., the males of which are briefly described) it presumably can be distinguished by the blackish flagellum, dark venation, and apical margin of tergites only slightly reddened. *S. cressonii* has the flagellum testaceous, more dusky above; wings whitish with pale nervures; abdomen usually yellowish at base. *S. pimpinellae* has a black abdomen, but differs from *nigricans* in the dull, closely punctured scutellum. The male of *S. proshorus* is imperfectly described, but the apical margin of tergites is said to be obscurely testaceous. *S. knetschi* is a larger species, with probably coarser punctures on mesoscutum.

Western species of this group, although rather numerous on the Pacific Coast, have received little attention. Western males are in some cases so similar that it will be essential to have the genitalia described in detail or figured. The females will be equally difficult to distinguish and there will be additional difficulties in associating the sexes correctly.

Of *nigricans* two subspecies are known as follows: *S. nigricans nigricans* from the mainland and *S. nigricans miguelensis* from San Miguel Island.

S. NIGRICANS NIGRICANS n. subsp.

MALE—Entirely black except as follows: Flagellum very dark brown beneath. Mandibles reddish, black only at extreme base. Tegulae pale testaceous on outer margin, more brownish within. Tarsi dark, but small joints of front pair somewhat reddened. Spurs pale testaceous. Depressed margin of tergites with a reddish tinge. Wings smoky hyaline. Stigma and nervures a very dark brown, or nearly fuscous. Head nearly rotund, barely wider than long. Eyes strongly convergent below. Basal ridge of labrum low, arched, finely roughened and dullish, the disk beyond polished, impunctate. Antennae reaching scutellum, the middle joints of flagellum not much longer than thick. Joint 4 a little shorter than 5, about one and one-third times longer than 3, and distinctly shorter than 2 plus 3. Joints of flagellum not nodose, without facets, the surface uniformly dull, microscopically punctate and set with extremely fine short pile. Clypeus moderately convex, the punctures close. Frons with moderately small dense punctures, but not dull. Vertex with somewhat sparser punctures. Mesoscutum and scutellum, moderately closely punctured, the punctures distinctly coarser than those of frons, and varying mostly from about one to three puncture-widths apart, with a few interspaces much greater. Meso- and metapleura dull, finely rugose, with a few minute punctures in a smooth strip on mesopleura along the posterior suture. Posterior and dorsal faces of propodeum, including enclosure, coarsely reticulate, the reticulations encroaching on sides of

propodeum. Enclosure defined on each side by a carina and broadly at apex by a smooth rim, that is continuous with a polished triangular area on upper part of truncation. Tergites finely and rather closely punctured, the punctures becoming finer and fainter toward apex of abdomen. Depressed apical margin of tergites rather broad, impunctate. Pubescence dull white, dense as usual on lower part of face, clypeus and antennal scapes, and that on frons, vertex and mesonotum slightly ochreous. Aedeagus testaceous brown. Stipites very minutely and densely striate and dull except at base. Apical appendage of stipes small, membranous, nearly nude except an extremely fine, short fringe on outer margin, and broadly oval in shape with the outer half curled upward. Dorsal surface of each sagitta depressed, clavate-fusiform before the geniculation. Portion beyond the geniculation compressed into a thin lamina, broad at base and evenly narrowing to acute apex. Length, 4.9 mm.; anterior wing, 3.5 mm.

Paratype much smaller. Mandibles, except base, and apex of labrum rufo-testaceous. All the tarsi reddened. Rugae of enclosure nearly straight, not forming reticulations, those at sides radiating. Length, 3.5 mm.; anterior wing, 2.5 mm.

Two males collected at Riverside, California, the holotype on *Eriogonum gracile*, Dec. 11, 1929, the paratype on *Euphorbia albomarginata* Aug. 12, 1930. Type in collection of Citrus Experiment Station, Riverside.

S. NIGRICANS MIGUELENSIS n. subsp.

MALE—Similar to typical *nigricans* from the mainland, but larger and less slender, and differing in color as follows: Mandibles black on basal half, rufo-testaceous and red apically. Flagellum black. Tegulae darker brown, subhyaline on outer margin anteriorly. Stigma and nervures almost black. Depressed apical margin of tergites almost perfectly concolorous. Genitalia the same except that the apical appendage of stipites is but little convoluted and thus appears to be much larger, but this portion is membranous and probably would be subject to less curling in larger specimens. Length, 5.5 mm.; anterior wing, 4 mm.

One male (holotype) from San Miguel Island, California, July 27, 1939, collected by the Channel Islands Biological Survey. Type in the Los Angeles Museum.

ANDRENA CLEMENTINA n. sp.

Closely allied to *A. chlorura* Ckll. and perhaps will ultimately prove to be an insular race of that species. It differs strikingly in the large amount of black hair on the antennal scapes, sides of face, frons, vertex, temples and upper part of mesopleura.

FEMALE—Head, thorax and abdomen dark olive-green. Greater portion of clypeus, mandibles, antennae and legs black or blackish. Mandibles red at apex. Claws of legs red, the spurs testaceous. Tegulae reddened posteriorly, the anterior half nearly black. Apical margin of tergites 1 to 4 conspicuously whitish hyaline. Wings dusky, with a reddish tinge. Stigma and nervures dark reddish-brown, the subcosta blackish. Pubescence fulvo-ochraceous, with much black hair on head and upper part of mesopleura, just below bases of wings, as mentioned above. Tegulae also with a few black hairs across the middle, but none anteriorly. Hair of mesonotum distinctly shorter than that of pleura. Hair of abdomen mainly short and erect and not conspicuous except when viewed from the side. Hair of first tergite and some on lateral margins of the second much longer. Tergites 2 to 4 each with a thin apical fascia of whitish hair. Fimbria dark seal-brown, with paler hair at the sides and base of tergite 5. Hair of legs mainly light, but that on front and middle tibiae and tarsi rather dark brownish. Some blackish hair at base of hind tibiae above, near the knee-plate. Flocculus of hind trochanters short and rather thin. Subgenal coronet* dark. Facial foveae black in frontal view and dark seal-brown when viewed from behind. Head a little broader than long. Facial foveae less than half as wide as space between eye margin and antennal socket, somewhat broadened above and not extending below level of antennae. Process of labrum more than twice as broad as long, rounded anteriorly but subtruncate in middle. Clypeus shining on the anterior middle, but the lateral and dorsal margins broadly dullish from minute tessellation. Punctures of clypeus fine, rather sparse and about as in *chlorura*, except that they are less distinct above and leave a narrow impunctate median area anteriorly. Sculpture of head otherwise and of the thorax dull, tessellate or granular-tessellate, but the frons closely and striately roughened as usual. Punctures of mesoscutum fine and indistinct. Enclosure of propodeum narrow, dull, finely rugulose at base. Abdomen a little more dullish than in *chlorura* and duller at base of tergites 2 and 3. Minute setigerous punctures of abdomen slightly more distinct and more numerous than in *chlorura*. Length about 8 mm.; anterior wing, 7 mm.

One female (holotype), San Clemente Island, California, April 2, 1939 (Channel Islands Survey) in Los Angeles Museum.

ANDRENA BAERIAE n. sp.

Belongs to a small group of Californian species, the members of which agree more or less exactly in the following characters taken from *baeriae*: Dorsal face of propodeum carinately ridged

* This is a new term for a specialized structure that I have noticed only in the females of *Andrena* (s. lat.). It is a semicircular ridge set with short, stiff bristles in the subgenal region of the head and guarding the inferior part of the cavity in which the mandible is set. It is sometimes brightly colored, but not conspicuous, except when the mandibles are open.

on lateral margins, the enclosure large and broad. Head much broader than long, with broad rounded cheeks. Facial foveae of medium width, reaching slightly below level of antennae. Hind tibiae rather wide, broadest half-way between middle and apex. Tibial scopa moderately dense and plumose, the hairs on dorsal margin as long as greatest width of tibia, those on outer surface less distinctly plumose and those on lower margin strongly curved upward. Middle and hind basitarsi subequal and moderately broad. Face of male immaculate (but in several undescribed species the clypeus has a large pale yellow or whitish mark). The only previously described species is *A. escondida* Ckll., of which only the male is known. The male of *baeriae* differs from *escondida* in its much smaller size, broader head and facial quadrangle; shorter, depressed, ovate abdomen, with shorter, more appressed pubescence on the tergites; and in the slightly greenish tinge of frons and abdomen.

FEMALE—Black, with slight metallic tints, the frons often distinctly greenish. Legs and abdomen often more or less brownish. Apical half of mandibles dark red. Flagellum strongly reddened, especially beneath. Tarsi ferruginous, the basitarsi usually darker. Tegulae ferruginous, darkened anteriorly. Wings dusky reddish. Stigma and nervures ferruginous, the subcosta blackish. Tergites 2 to 4 rather broadly whitish or testaceous at apex. Pubescence pale ochraceous, more or less white on face, cheeks and under parts of thorax. Facial foveae pale ochreous when viewed from behind. Hair of legs light, the tuft at apex of hind femora pale brown. Tergites 2 to 4 with a rather dense, white, apical hair-band, interrupted medially on 2 and 3. Fimbria light fulvous. Hair of head and thorax of moderate length and density, and somewhat shorter on mesonotum than elsewhere. Floccus of propodeum weakly curled, the pleuron below floccus with a few scattered hairs anteriorly. Flocculus of hind trochanters moderately long and dense. Tergite 1 almost nude, having a few short hairs on lateral margins. Tergites 2 to 4 with a fine short depressed pubescence on the disk, most evident on 4 and nearly absent on middle of 2. Subgenal coronet bright orange red. Mandibles stout, weakly dentate within. Process of labrum very broad and low, subtruncate in front. Facial foveae almost touching eye margins, reaching slightly more than half-way from eye margins to lateral ocellus and somewhat narrowed below. Joint 1 of flagellum barely longer than 2 plus 3, which are equal and somewhat shorter than 4. Middle joints of flagellum no longer than broad. Face below antennae, including clypeus, dull, finely tessellate and with fine, obscure, sparse punctures. Frons more shining, striate. Mesoscutum and scutellum like the clypeus, but the punctures closer and a little more distinct. Pleura, especially the sides of propodeum, tessellate, more shining than dorsum. Enclosure dull, the basal margin finely rugulose. Abdomen oval, depressed, with a dullish, tessellate, impunctate sculpture. Disk of tergite 1 very large, flattened, the basal declivity unusually

short. Tergite 2 depressed about one-fourth at apex. Pygidial area not embossed, rounded at apex. Basal nervure a little post-furcal. Second sub-marginal cell narrowed above and receiving first recurrent nervure at the middle. Stigma narrow, about five times as long as wide. Length, 6.5-7 mm.; anterior wing, 4.5-5 mm.

MALE—Similar to female. Abdomen slightly tinged with greenish. Tergite 2 often with a small reddish suffused spot on each side before the apical depression. Pubescence slightly paler, the face between and below antennae with dense long white hair, more or less concealing the surface. Tergite 1 with rather long thin erect hair, and 2 with similar but shorter hair on each side of disk. Disk of tergite 2 otherwise, and that of following segments with fine depressed hair, slightly longer and denser than in the female, but the hair-bands at apex of tergites 2 to 4 very thin. Hair at apex of abdomen whitish. Head much broader than long. Cheeks distinctly broader than eyes, and broadly rounded behind. Mandibles moderately long but reaching distinctly beyond the sides of labrum. Antennae about as in female, the first joint of flagellum equalling 2 plus 3. Process of labrum about three times as broad as long, truncate or truncate-emarginate in front. Sculpture similar, but clypeus with distinct very fine close punctures, which become finer and fainter on the sides. Posterior middle of mesoscutum and the scutellum sometimes rather shiny. Dorsal surface of propodeum rounded off laterally, not at all ridged as in female. Abdomen wider than thorax, more convex than in female, more shining, the surface of tergites minutely tessellate and with rather close microscopic punctures. Length, 5-6.5 mm.; anterior wing, 4.5-5 mm.

Described from five females, eighteen males, including holotype female and allotype, at flowers of *Baeria chrysostoma*, var. *gracilis* and *B. aristata*, Riverside, California, the males from March 3 to April 7 in different years, the females from March 29 to April 6. Also the following paratypes: Two females, two and three miles west of Perris, on *Baeria*, April 13 and 20; sixteen females, five males, at the Gavilan, Riverside County, April 7-30, on *Baeria*; three males, Whittier, and Puente Hills, near Whittier, on *Baeria*, March 13 and April 30; four males, from the hills north of Rosamond, Mohave Desert, on *Baeria*, March 27; and two females, Davis, California, May 12 (J. J. DuBois). Types in collection of Citrus Experiment Station, Riverside.

This is the species recorded by Cockerell as *Andrena* sp. from Santa Catalina Island (Don Meadows). It is very similar in size and general appearance to *Diandrena beatula* Ckll., which flies with it at flowers of *Baeria*, but the two are easily separated when observed under a lens.